



# di SKALA G310

## COMMUNICATIONS

Model **G** is capable of communicating with other scales of the same series, with a computer or with a TPV.

It has an 9-way female RS-232 connector on the bottom with electrical connections as follows:

RxD.....pin2  
TxD.....pin3  
GND.....pin5

If the scales are connected to a PC, the latter may have a 9 or 25 way connector, with the following description:

Description	DB 9 ( PC 9)	DB 25 ( PC 25)
Display	-	1
TXD ( data sent )	3	2
RXD ( data received )	2	3
RTS	7	4
CTS	8	5
DSR	6	6
Mass	5	7
CD	1	8
DTR	4	20
RI	9	22

The following connections should be made:

**Scales.....DB 9**  
2 .....2  
3 .....3  
5 .....5

**Scales.....DB 25**  
2.....3  
3.....2  
5.....7



**! Never use a communications cable different to the one shown above.**

## 1. PROGRAMMING OF COMMUNICATIONS

### 1.1. Communication characteristics

For programming of communications, the process is as follows:



1. Enter test mode by simultaneously pressing  and  while the scales are effecting the countdown after switching on.

2. Press .



3. Select the type of communication in accordance with the table below:

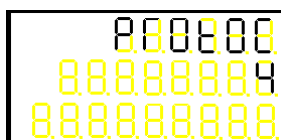
Type	Bauds	Data Bits	Stop Bits	Parity
0	9600	8	1	No
1	9600	8	1	Even
2	9600	8	1	Odd
3	9600	8	2	No
4	9600	7	1	Even
5	9600	7	1	Odd
6	9600	7	2	Even
7	9600	7	2	Odd
8	19200	8	1	No
9	19200	8	1	Even
10	19200	8	1	Odd
11	19200	8	2	No
12	19200	7	1	Even
13	19200	7	1	Odd
14	19200	7	2	Even
15	19200	7	2	Odd
16	4800	8	1	No
17	4800	8	1	Even
18	4800	8	1	Odd
19	4800	8	2	No

Type	Bauds	Data Bits	Stop Bits	Parity
20	4800	7	1	Even
21	4800	7	1	Odd
22	4800	7	2	Even
23	4800	7	2	Odd
24	2400	8	1	No
25	2400	8	1	Even
26	2400	8	1	Odd
27	2400	8	2	No
28	2400	7	1	Even
29	2400	7	1	Odd
30	2400	7	2	Even
31	2400	7	2	Odd
32	1200	8	1	No
33	1200	8	1	Even
34	1200	8	1	Odd
35	1200	8	2	No
36	1200	7	1	Even
37	1200	7	1	Odd
38	1200	7	2	Even
39	1200	7	2	Odd

Having selected the type of communication, press  to save it and then select the protocol.

## 2. COMMUNICATION PROTOCOLS

Once the communications parameters have been programmed, the scale will show in the display the possibility of selection of the communications of protocol. Depending on the model, the scale will have the possibility of storing only one protocol or several (until a maximum of 60) protocols.



**NOTE:** In scales G-310 the protocol used must be loaded from PC. In scales G-320 all the protocols are programmed in the scale.

Enter the selected protocol number according to Table 1

1. Press  (the machine waits until the software of the PC sending the protocols starts to run).

Code	Protocol	Code	Protocol
1	ANKER	18	TISA con envío en peso Stable
2	TPV CASIO	19	VD TISA
3	RIVA / UNIWELL	20	VD SEUR
4	TISA	21	UNIPROX con 6 dígitos de precio
5	EAN a PC ICL	22	STAR (con envío en peso Stable)
6	SANYO	23	-----
7	APOLLO/SAMSUNG POLONIA	24	Checkout_Dialog06
8	DELTA	25	EUROSTAR 2000T ALPHA
9	ALFA	26	-----
10	DOLAR/SAMSUNG ESPAÑA	27	DATECS
11	SAMSUNG PORTUGAL	28	TPV CASIO NUEVO
12	UNIPROX (BMC PS-2000)	29	-----
13	UNIPROX con checksum	30	-----
14	SHARP UP-700	31	ELZAB
15	KABEL (ITALIA)	32	TOWA
16	NCI	33	SHARP UP-700-2
17	ECR-POSNET		

Table 1

## 2.1. Characteristics of the protocols

Protocol	Parameter	Protocol	Parameter
1-ANKER	0	8-DELTA	1
2-CASIO CE at 9600	4	9-ALFA	1
2-CASIO CE at 2400	24	10-SAMSUNG ESPAÑA	0
3-RIVA	2	11-SAMSUNG PORTUGAL	4
3-UNIWELL	28	12-UNIPROX	0
4-TISA	0	12-BMC PS2000	4
5-EAN at PC ICL	1	13-UNIPROX (with checksum)	0
6-SANYO	5	14-SHARP UP700	29
7-APOLLO/SAMSUNG POLONIA	0	15-KABEL	0
7-POSTNET POLONIA	0	16-NCI	-

## 2.2. Operation

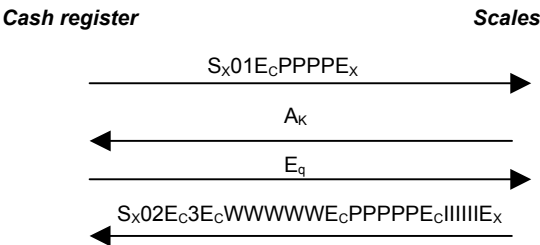
Having configured the type of device with which communication is to be established, simply effect the desired operation from the corresponding TPV, and the scales will automatically send the weight message.

 Except for protocols 9 and 12 in which communication commences by pressing .

3. PROTOCOLS TYPE

3.1. ANKER cash register protocol

Protocol

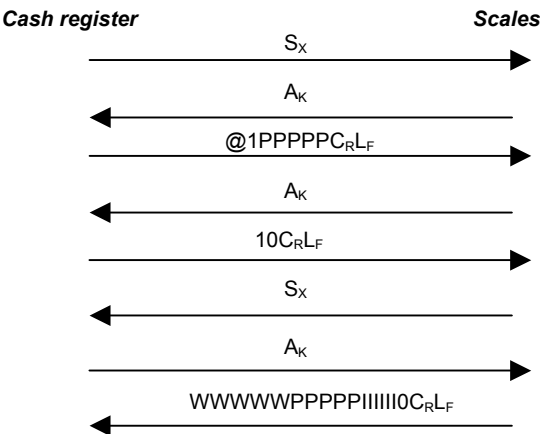


Where.

$S_x$ :	0x02h	$A_k$ :	0x06h
01:	0x30 y 0x31h		
$E_c$ :	0x1Bh	$E_x$ :	0x03h
WWWWW:	5 digits for the WEIGHT.		
PPPPP:	5 digits for the PRICE.		
IIIII:	6 digits for the SUM		

3.2. TPV CASIO CE protocol

Protocol

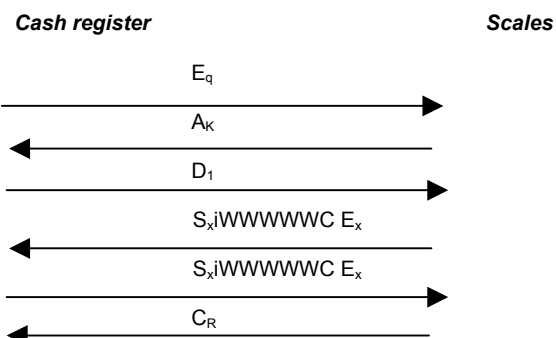


Where:

$S_x$ :	0x02h	$A_k$ :	0x06h
@1:	0x40h y 0x31h	10:	0x31h y 0x30h
$C_R$ :	0x0Dh	$L_F$ :	0x0Ah
WWWWW:	5 digits for WHEIGT.		
PPPPP:	5 digits for PRICE		
IIIII:	6 digits for SUM		

### 3.3. *RIVA / UNIWELL cash register protocol*

#### Protocol

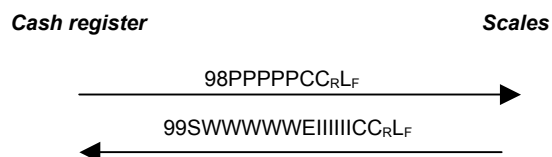


Where:

<b>E<sub>q</sub>:</b>	0x05h	<b>A<sub>K</sub>:</b>	0x06h
<b>D<sub>1</sub>:</b>	0x11h	<b>S<sub>x</sub>:</b>	0x02h
<b>i:</b>	0x69h		
<b>WWWWW:</b>	5 digits for WEIGHT		
<b>C:</b>	Checksum, logical sum (XOR) starting from i.		
<b>E<sub>x</sub>:</b>	0x03h	<b>C<sub>R</sub>:</b>	0x0Dh

### 3.4. *TISA cash register protocol*

#### Protocol

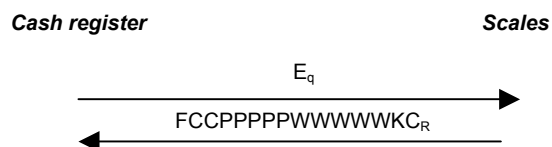


Where:

<b>98:</b>	0x38h y 0x39h		
<b>PPPPP:</b>	5 digits for the price.		
<b>C:</b>	Checksum, logical sum (XOR) of all previous characters.		
<b>C<sub>R</sub>:</b>	0x0Dh	<b>L<sub>F</sub>:</b>	0x0Ah
<b>99:</b>	0x39h y 0x39h		
<b>S:</b>	Weight status.		
	S: 0x30h Correct.		
	S: 0x31h Error.		
<b>WWWWW:</b>	5 digits for WEIGHT.		
<b>E:</b>	Sum status.		
	E: 0x30h Correct.		
	E: 0x31h Error.		
<b>IIIII:</b>	6 digits for SUM		

### 3.5. *EAN cash register protocol to PC ICL*

#### Protocol

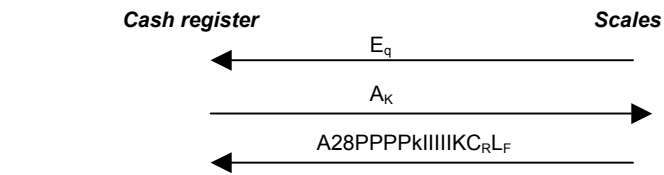


Where:

<b>E<sub>q</sub>:</b>	0x05h			
<b>F:</b>	0x40h			
<b>CC:</b>	0x35h y 0x35h	Configurable barcode heading.		
<b>PPPPP:</b>	5 digits for PRICE.			
<b>WWWWW:</b>	5 digits for WEIGHT.			
<b>K:</b>	Checksum, logical sum (XOR) of all previous characters.			
<b>C<sub>R</sub>:</b>	0x0Dh			

### 3.6. SANYO cash register protocol

#### Protocol

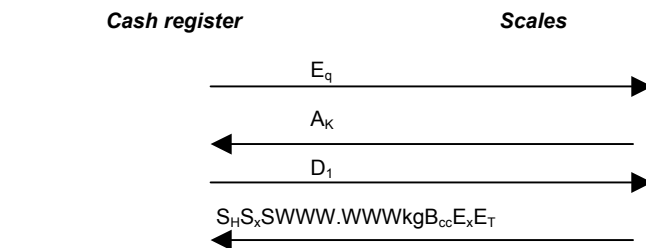


#### Where:

<b>E<sub>q</sub>:</b>	0x05h	<b>A<sub>K</sub>:</b>	0x06h
<b>A :</b>	0x41h	<b>2 :</b>	0x32h
<b>8 :</b>	0x38h		
<b>PPPP:</b>	4 digits for the PRICE		
<b>k:</b>	Partial checksum of the first 7 characters sent		
<b>IIII :</b>	5 digits for the SUM		
<b>K:</b>	Total checksum of the 13 characters sent.		
<b>C<sub>R</sub> :</b>	0x0Dh	<b>L<sub>F</sub> :</b>	0x0Ah

### 3.7. APOLLO/SAMSUNG POLAND / POSNET POLAND cash register protocol

#### Protocol

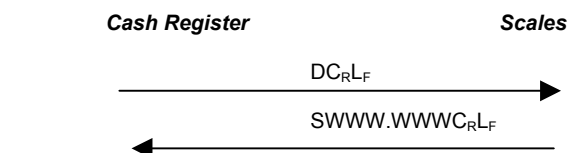


#### Where:

<b>E<sub>q</sub>:</b>	0x05h	<b>A<sub>K</sub>:</b>	0x06h
<b>D<sub>1</sub>:</b>	0x11h		
<b>S<sub>H</sub>:</b>	0x01h	<b>S<sub>x</sub>:</b>	0x02h
<b>S:</b>	Weight status.		
	S: 0x30h Correct.		
	S: 0x31h Error.		
<b>WWWWW:</b>	5 digits for WEIGHT.		
<b>∴:</b>	0x2Eh		
<b>kg:</b>	0x6Bh y 0x67h		
<b>B<sub>cc</sub>:</b>	Checksum, logical sum (XOR) from S of weight status.		
<b>E<sub>x</sub>:</b>	0x02h		
<b>E<sub>T</sub>:</b>	0x04h		

### 3.8. DELTA cash register protocol

#### Protocol

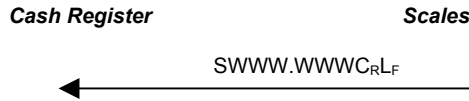


#### Where:

<b>D:</b>	0x44h		
<b>C<sub>R</sub>:</b>	0x0Dh		
<b>L<sub>F</sub>:</b>	0x0Ah		
<b>S:</b>	Sign		
	<b>+: 0x2Bh</b>		
	<b>-: 0x2Dh</b>		
<b>WWWWW:</b>	6 digits for WEIGHT		
<b>∴:</b>	0x2Eh		

### 3.9. ALFA cash register protocol

#### Protocol

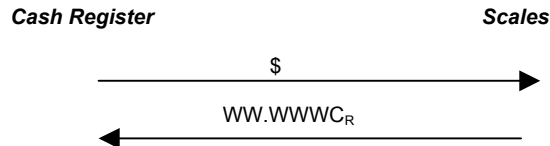


#### Where:

**S:** Sign.  
 +: 0x2Bh  
 -: 0x2Dh  
**WWWWW:** 6 digits for WEIGHT.  
 .: 0x2Eh  
**C<sub>R</sub>:** 0x0Dh  
**L<sub>F</sub>:** 0x0Ah

### 3.10. SAMSUNG-SPAIN cash register protocol

#### Protocol



#### Where:

**\$ :** 0x24h  
**WWWWW :** 6 digits for WEIGHT.  
 .: 0x2Eh  
**C<sub>R</sub> :** 0x0Dh

### 4.3.11. SAMSUNG PORTUGAL cash register protocol

#### Protocol

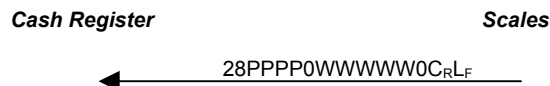


#### Where:

**W:** 0X57H, Weight request.  
**C<sub>R</sub>:** 0x0Dh  
**L<sub>F</sub>:** 0x0Ah  
**WWWWW:** 5 digits for WEIGHT.  
 .: 0x2E. Decimal point.  
**S:** 0x53h. Weight status.  
**00:** 0x30h, 0x30h. Whether correct weight status is activated.  
**KG:** 0x4Bh y 0x47h  
**E<sub>TX</sub>:** 0x03h

### 3.12. UNIPROX / BMC PS 2000 cash register protocol

#### Protocol

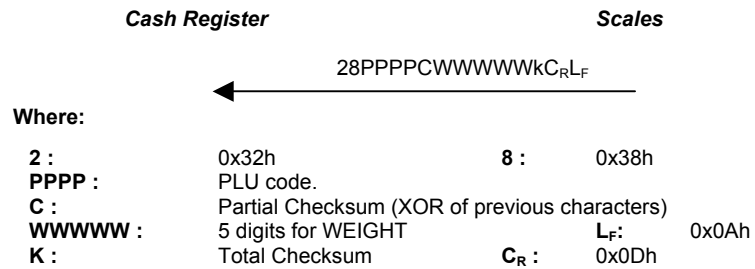


#### Where:

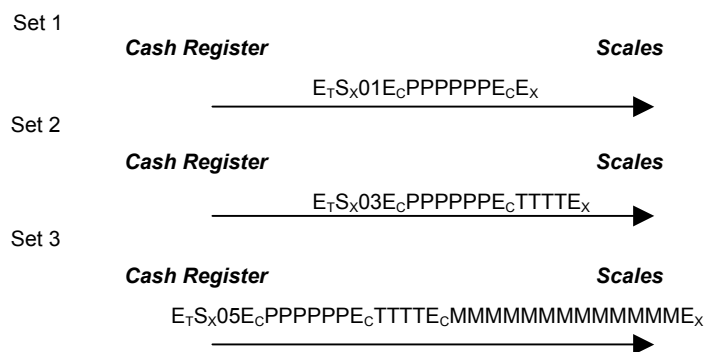
**0:** 0x30h  
**2 :** 0x32h  
**PPPP :** PLU Code  
**WWWWW :** 5 digits for WEIGHT.  
**8 :** 0x38h  
**C<sub>R</sub>:** 0x0Dh  
**L<sub>F</sub>:** 0x0Ah

**Note:** the WEIGHT-PRICE-SUM is not a protocol for the scales. WEIGHT-PLU CODE is, however, a protocol and therefore the keys in all the other protocols can be used to enter the product price, and thus calculate the sum. In this protocol, the PLU code to be sent to the cash register is determined. The row for the sum is cancelled in this protocol.

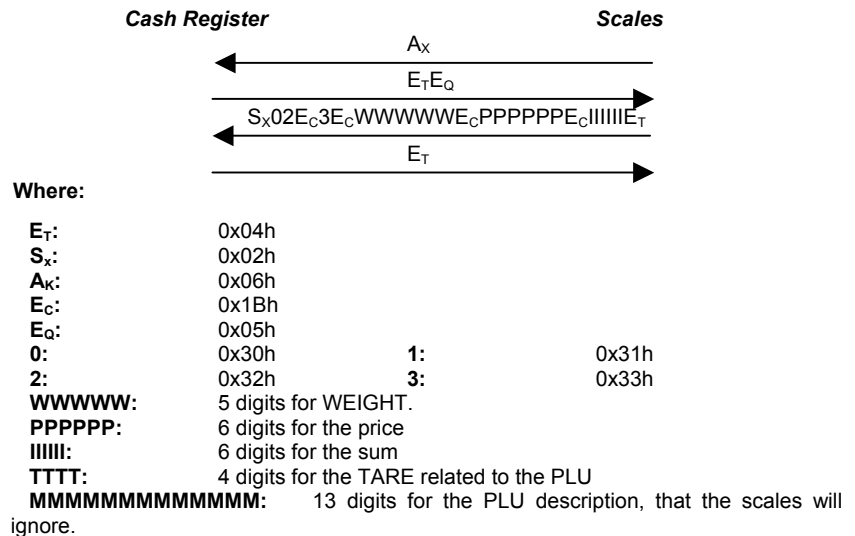
### 3.13. **UNIPROX with CHECKSUM cash register protocol** Protocol



### 3.14. **SHARP UP-700 cash register protocol** Protocol



Using the different heading, the protocol is developed in the same way for all three sets

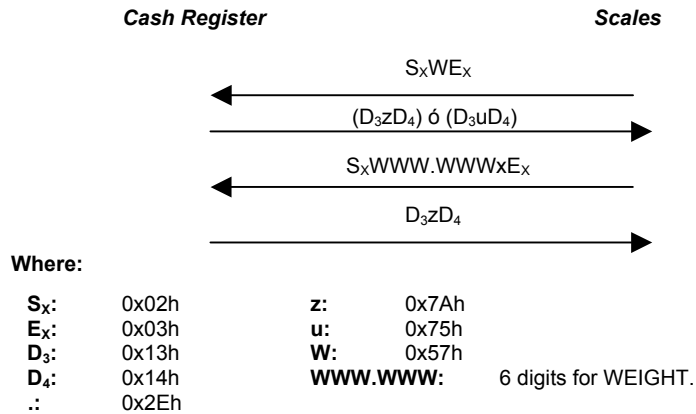



**Note:** the sharp up 700 is not a protocol for the “only weight” scales



### 3.15. *KABEL cash register protocol*

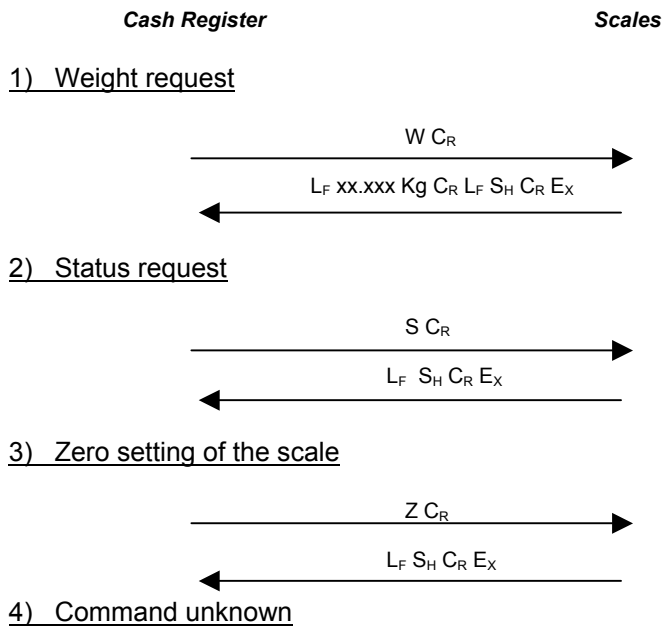
#### Protocol



The weight is sent by pressing the ENTER key. The weight cancellation command can be sent by pressing the key  on the scales, and in this mode the characters is sent by pressing the c key on the cash register (0x63h).

### 3.16. *NCI cash register protocol*

#### Protocol



In case of not sending any of the previous commands, the scale answer "Command unknown"

**Were :**

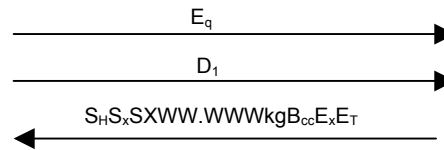
<b>W:</b>	0x57h	<b>L<sub>F</sub>:</b>	0x0Ah
<b>S:</b>	0x53h	<b>E<sub>x</sub>:</b>	0x03h
<b>Z:</b>	0x5Ah	<b>S<sub>H</sub>:</b>	0x01h
<b>?:</b>	0x3Fh	<b>xxxxx:</b>	5 digits for WEIGHT
<b>C<sub>R</sub>:</b>	0x0Dh	<b>Kg:</b>	0x4Bh y 0x47h
<b>∴</b>	0x2Eh		Decimal point

### 3.17 Protocol ECR-POSNET)

#### Protocol

#### Cash Register

#### Scale



#### Where:

<b>E<sub>q</sub>:</b>	0x05h	<b>D<sub>1</sub>:</b>	0x11h
<b>S<sub>H</sub>:</b>	0x01h	<b>S<sub>x</sub>:</b>	0x02h
<b>S:</b>	Weight Status S: 0x53h Stable. S: 0x55h UnStable.		
<b>X:</b>	0x20h		
<b>WWWWW:</b>	5 digits for weight		
<b>..:</b>	0x2Eh		
<b>kg:</b>	0x6Bh y 0x67h		
<b>B<sub>cc</sub>:</b>	Checksum, (XOR) from S of weight status.		
<b>E<sub>x</sub>:</b>	0x03h		
<b>E<sub>T</sub>:</b>	0x04h		

**Note:** X is a space (0x20h).

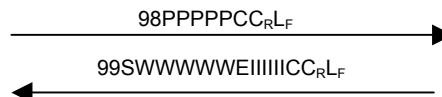
**Note:** In case of quantities with value < 1000 the positions on the left are filled with "0" (0x30h) but in case of quantities > 1000 these positions are filled with " " (0x20h).

### 3.18 Protocol TISA (with sending of stable weight)

#### Protocol

#### Cash Register

#### Scale



#### Where:

<b>98:</b>	0x38h y 0x39h		
<b>PPPPP:</b>	5 digits for price		
<b>C:</b>	Checksum, (XOR) of all the previous characters.		
<b>C<sub>R</sub>:</b>	0x0Dh	<b>L<sub>F</sub>:</b>	0x0Ah
<b>99:</b>	0x39h y 0x39h		
<b>S:</b>	Weight Status S: 0x30h OK S: 0x31h Error.		
<b>WWWWW:</b>	5 digits for weight		
<b>E:</b>	Amount status E: 0x30h OK E: 0x31h Error.		
<b>IIIII:</b>	6 digits for Amount		

**Note:** Once the weight is received, the scale sends the data when the weight is stable, it is not negative and there is not error.

### 3.19 Protocol VD TISA

#### Protocol

#### Cash Register

#### Scale

99S W W W W W E I I I I I C C<sub>R</sub> L<sub>F</sub>

#### Where:

**98:** 0x38h y 0x39h  
**C:** Checksum, (XOR) of all the previous characters.  
**C<sub>R</sub>:** 0x0Dh **L<sub>F</sub>:** 0x0Ah  
**S:** Weight Status  
           S: 0x30h OK  
           S: 0x31h Error.  
**W W W W W:** 5 digits for Weight.  
**E:** Amount status  
           E: 0x30h OK  
           E: 0x31h Error.  
**I I I I I:** 6 digits for Amount

**Note:** The scale sends the data when the weight is stable, it is not negative, it is bigger than 0 and there is not error

### 3.20 Protocol VD SEUR

#### Protocolo

#### Cash Register

#### Scale

W W . W W W C<sub>R</sub> L<sub>F</sub>

#### Where:

**C<sub>R</sub>:** 0x0Dh **L<sub>F</sub>:** 0x0Ah  
**W W W W W:** 5 dígitos for weight. **..:** 0x2Eh

**Note:** The scale sends the data when the weight is stable, it is not negative, it is bigger than 0 and there is not error

### 3.21 Protocol UNIPROX (with 6 digits for price)

#### Protocol

#### Cash Register

#### Scale

E E P P P P P P W W W W W W K C<sub>R</sub> L<sub>F</sub>

#### Where:

**E E :** Two characters for EAN code Heading  
**P P P P P P :** 6 digits for price  
**W W W W W W :** 5 digits for weight **L<sub>F</sub>:** 0x0Ah  
**K :** Checksum total **C<sub>R</sub> :** 0x0Dh

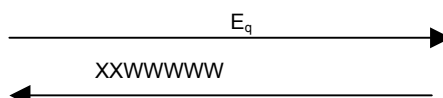
**Note:** The Scale sends the data when the key Enter is pressed.

### 3.22 Protocol STAR (with sending of stable weight)

#### Protocol

**Cash Register**

**Scale**



Where:

**WWWWW:** 5 digits for weight.

**X:** 0x20h

**Note:** The X is the character space (0x20h).

### 3.23 Reserved

### 3.24 Protocol DIALOG 06

#### Protocol

There are four different strings

String 1

**Cash Register**

**Scale**

E<sub>T</sub>S<sub>x</sub>01E<sub>c</sub>PPPPPE<sub>c</sub>E<sub>x</sub>

String 2

**Cash Register**

**Scale**

E<sub>T</sub>S<sub>x</sub>03E<sub>c</sub>PPPPPE<sub>c</sub>TTTTE<sub>x</sub>

String 3

**Cash Register**

**Scale**

E<sub>T</sub>S<sub>x</sub>04E<sub>c</sub>PPPPPE<sub>c</sub>MMMMMMMMMMMMME<sub>x</sub>

String 4

**Cash Register**

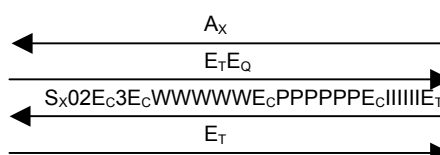
**Scale**

E<sub>T</sub>S<sub>x</sub>05E<sub>c</sub>PPPPPE<sub>c</sub>TTTTE<sub>c</sub>MMMMMMMMMMMMME<sub>x</sub>

From the 4 different string the protocol function as follows

**Cash Register**

**Scale**



Where:

**E<sub>T</sub>:** 0x04h

**S<sub>x</sub>:** 0x02h

**A<sub>K</sub>:** 0x06h

**E<sub>c</sub>:** 0x1Bh

**E<sub>Q</sub>:** 0x05h

**0:** 0x30h

**1:** 0x31h

**2:** 0x32h

**3:** 0x33h

**4:** 0x34h

**5:** 0x35h

**WWWWW:** 5 digits for weight

**PPPPPP:** 6 digits for PRICE

**IIIIII:** 6 digits for AMOUNT

**TTTT:** 4 digits for the PLU tare

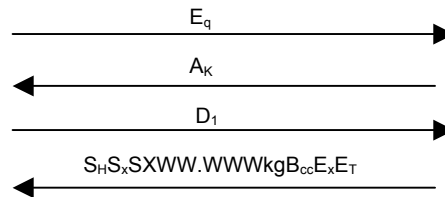
**MMMMMMMMMMMMMM:** 13 digits for the PLU description ( ignored by the scale)

### 3.25 Protocol EUROSTAR 2000T ALPHA

#### Protocol

#### Cash Register

#### Scale



#### Where:

<b>E<sub>q</sub>:</b>	0x05h	<b>A<sub>K</sub>:</b>	0x06h
<b>D<sub>1</sub>:</b>	0x11h		
<b>S<sub>H</sub>:</b>	0x01h	<b>S<sub>x</sub>:</b>	0x02h
<b>S:</b>	Weight Status S: 0x53h Stable. S: 0x55h UnStable.		
<b>X:</b>	0x20h		
<b>WWWWW:</b>	5 digits for weight		
<b>∴:</b>	0x2Eh		
<b>kg:</b>	0x6Bh y 0x67h		
<b>B<sub>cc</sub>:</b>	Checksum,(XOR) from S of weight status.		
<b>E<sub>x</sub>:</b>	0x03h		
<b>E<sub>T</sub>:</b>	0x04h		

**Note:** The character X is the character space (0x20h).

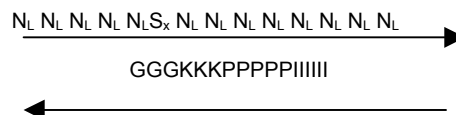
### 3.26 Reserved

### 3.27 Protocol DATECS

#### Protocol

#### Cash Register

#### Scale

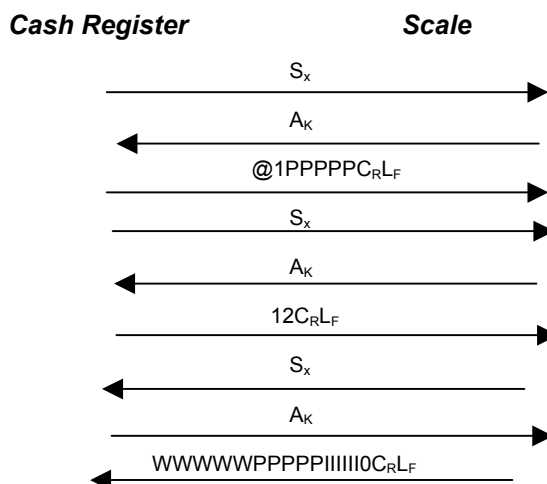


<b>N<sub>L</sub>:</b>	0x00h	<b>S<sub>x</sub>:</b>	0x02h
<b>GGG:</b>	3 digits for grams		
<b>KKK:</b>	3 digits for kilograms		
<b>PPPPP:</b>	5 digits for price		
<b>IIIIII:</b>	6 digits for amount		

**Note:** The scale will allways send zeroes (0x30) in the digits of price and amount.

## 3.28 Protocol CASIO 2

### Protocol



Where:

$S_x$ :	0x02h	$A_K$ :	0x06h	
@1:	0x40h y 0x31h	10:	0x31h y 0x30h	
$C_R$ :	0x0Dh	$L_F$ :	0x0Ah	
WWWWW:	5 digits for weight			
PPPPP:	5 digits for price			
IIIII:	6 digits for amount			

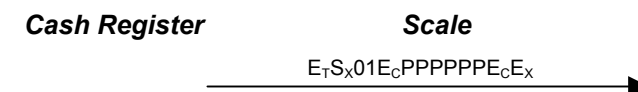
## 3.29 Reserved

## 3.30 Protocol DIALOG 06 (with minimum weight)

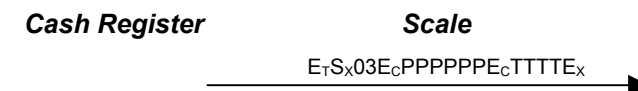
### Protocol

It is possible to send 4 different strings

String 1



String 2



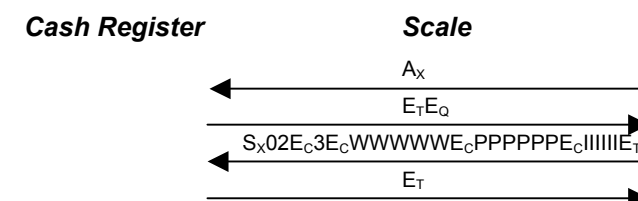
String 3



String 4



Depending on the string the protocol will follow:



**Where:**

<b>E<sub>T</sub>:</b>	0x04h		
<b>S<sub>x</sub>:</b>	0x02h		
<b>A<sub>K</sub>:</b>	0x06h		
<b>E<sub>C</sub>:</b>	0x1Bh		
<b>E<sub>Q</sub>:</b>	0x05h		
<b>0:</b>	0x30h	<b>1:</b>	0x31h
<b>2:</b>	0x32h	<b>3:</b>	0x33h
<b>4:</b>	0x34h	<b>5:</b>	0x35h
<b>WWWWW:</b>	5 digits for WEIGHT		
<b>PPPPPP:</b>	6 digits for PRICE		
<b>IIIIII:</b>	6 digits for AMOUNT		
<b>TTTT:</b>	4 digits for the PLU tare		

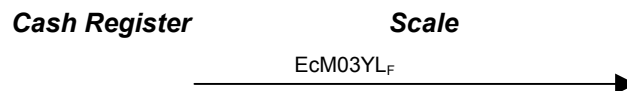
**Note:** The different between this protocol and protocol number 24 is that for this protocol the scale does not send an error message when the weight is under minimum weight of the scale( 20\*e).

### 3.31 Protocol ELZAB

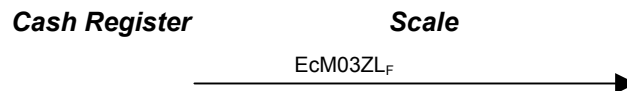
**Protocol**

There are two types of strings

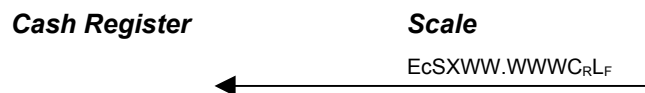
String 1



String 2



From the headers, the protocol will follow the same for both strings

**Where:**

<b>E<sub>C</sub>:</b>	0x1Bh	<b>M:</b>	0x4Dh
<b>03:</b>	0x30h y 0x33h	<b>Y:</b>	0x61h
<b>Z:</b>	0x62h	<b>X:</b>	0x20h
<b>WWWWW:</b>	5 digits for weight		
<b>..:</b>	0x2Eh		
<b>S:</b>	Weight Status		
S: 0x53h	Stable.		
S: 0x55h	UnStable.		
<b>C<sub>R</sub>:</b>	0x0Dh		
<b>L<sub>F</sub>:</b>	0x0Ah		

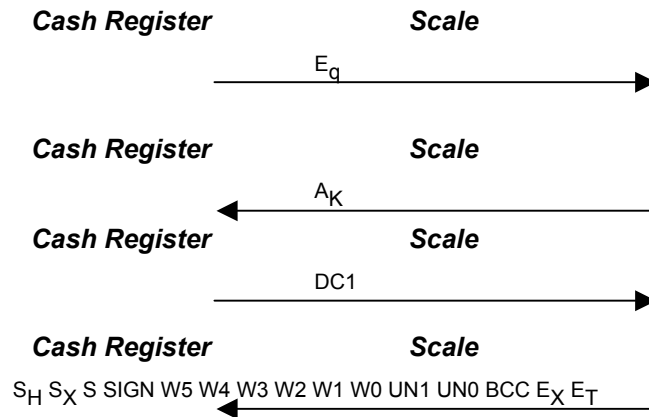
**Note:** The X represent the character space (0x20h).

## Protocolo

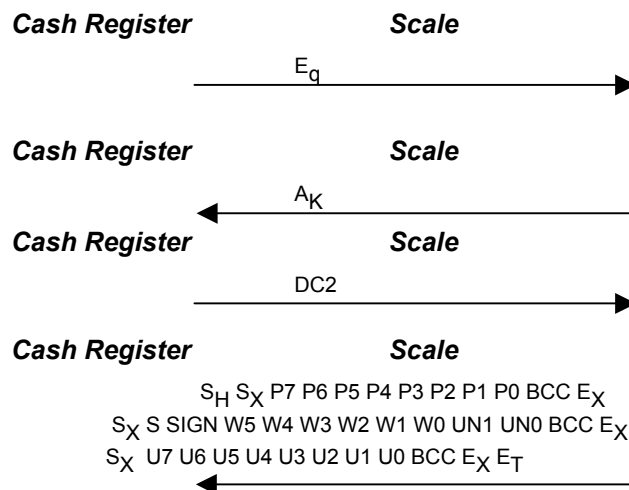
1.Command mode:

There are three possible formats depending on the string send by the Cash register:

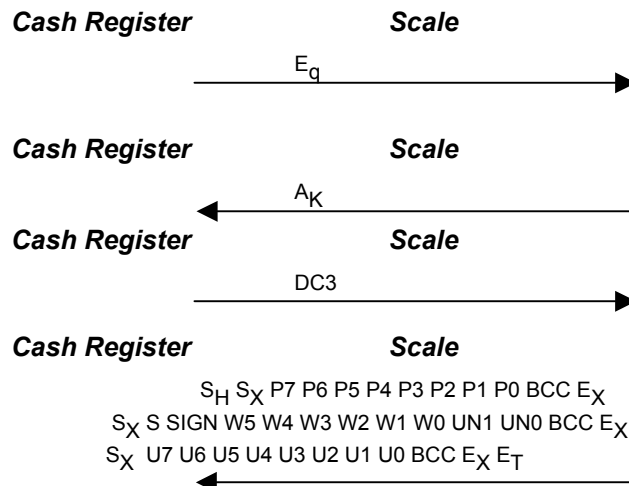
## FORMAT 1



## FORMAT 2



## FORMATO 3

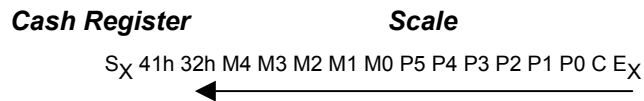


**Note:** In format 3 the scale will send the data continuously once per second.

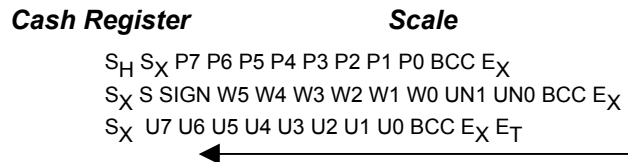


## 2.Key trigger mode:

When the key ENTER is pressed in the scale:



When the keys SHIFT and TOTAL are pressed in the scale



Where:

S <sub>H</sub> :	0x01h	E <sub>X</sub> :	0x03
S <sub>X</sub> :	0x02h	E <sub>T</sub> :	0x04
E <sub>q</sub> :	0x05h	A <sub>k</sub> :	0x06h
S:	Stable: 0x53h	UnStable:	0x55h
SIGN:	+: 0x20h	-:	0x2Dh
UN1:	g: 0x20h		
UN0:	g: 0x67h		

BCC: Exclusive value of the data block.  
C: Check point.

M<sub>4</sub>M<sub>3</sub>M<sub>2</sub>M<sub>1</sub>M<sub>0</sub>: PLU Code. It is 99999 when PLU is not used.

W<sub>5</sub>W<sub>4</sub>W<sub>3</sub>W<sub>2</sub>W<sub>1</sub> W<sub>0</sub>: 6 digits for WEIGHT.

P<sub>7</sub>P<sub>6</sub>P<sub>5</sub>P<sub>4</sub>P<sub>3</sub>P<sub>2</sub>P<sub>1</sub>P<sub>0</sub>: 8 digits for AMOUNT.

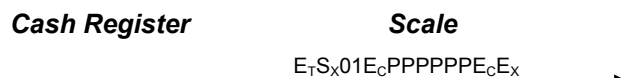
U<sub>7</sub>U<sub>6</sub>U<sub>5</sub>U<sub>4</sub>U<sub>3</sub>U<sub>2</sub>U<sub>1</sub>U<sub>0</sub>: 8 digits for PRICE.

### 3.33 Protocol SHARP UP-700-2

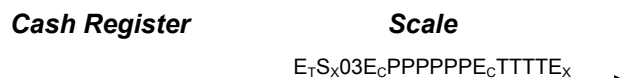
#### Protocol

There are three possible strings

String 1



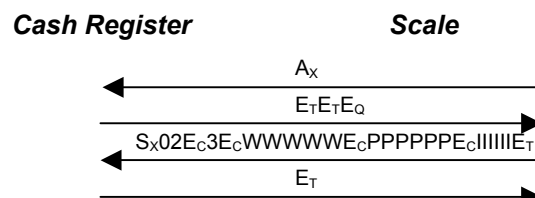
String 2



String 3



From the initial strings, the protocol is the same



Where:

<b>E<sub>T</sub>:</b>	0x04h		
<b>S<sub>x</sub>:</b>	0x02h		
<b>A<sub>K</sub>:</b>	0x06h		
<b>E<sub>C</sub>:</b>	0x1Bh		
<b>E<sub>Q</sub>:</b>	0x05h		
<b>0:</b>	0x30h	<b>1:</b>	0x31h
<b>2:</b>	0x32h	<b>3:</b>	0x33h
<b>WWWWW:</b>	5 digits for weight		
<b>PPPPP:</b>	6 digits for PRICE		
<b>IIIII:</b>	6 digits for AMOUNT		
<b>TTTT:</b>	4 digits for the PLU tare		
<b>MMMMMMMMMMMMMM:</b>	13 digits for the PLU description ( ignored by the scale)		

### 3.34 Protocol QT-6000

#### Protocolo

There are 4 possible strings.

String 1

**Cash Register** **Scale**

String 2  $\xrightarrow{E_T S_x 01 E_C P P P P P E_C E_x}$

**Cash Register** **Scale**

String 3  $\xrightarrow{E_T S_x 03 E_C P P P P P E_C T T T T E_x}$

**Cash Register** **Scale**

String 4  $\xrightarrow{E_T S_x 04 E_C P P P P P E_C M M M M M M M M M M M M M M M M E_x}$

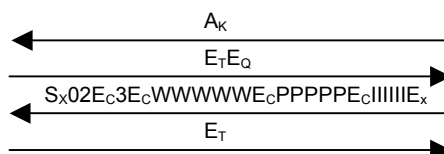
String 4

**Cash Register** **Scale**

$\xrightarrow{E_T S_x 05 E_C P P P P P E_C T T T T E_C M M M M M M M M M M M M M M M M E_x}$

From the initial strings, the protocol is the same

**Cash Register** **Scale**



Where:

<b>E<sub>T</sub>:</b>	0x04h	<b>Ex:</b>	0x03h
<b>S<sub>x</sub>:</b>	0x02h		
<b>A<sub>K</sub>:</b>	0x06h		
<b>E<sub>C</sub>:</b>	0x1Bh		
<b>E<sub>Q</sub>:</b>	0x05h		
<b>0:</b>	0x30h	<b>1:</b>	0x31h
<b>2:</b>	0x32h	<b>3:</b>	0x33h
<b>4:</b>	0x34h	<b>5:</b>	0x35h

**WWWWW:** 5 digits for weight  
**PPPP:** 6 digits for PRICE

**IIIII:** 6 digits for AMOUNT  
**TTTT:** 4 digits for the PLU tare  
**MMMMMMMMMMMMMM:** 13 digits for the PLU description ( ignored by the scale)

### 3.35 Protocol OLIVETTI

#### Protocol

**Cash Register**

**Scale**

← d2800000WWWWWKC<sub>R</sub>L<sub>F</sub>

#### Where:

**d:** 0x64h  
**2:** 0x32h      **8:** 0x38h  
**0:** 0x30h  
**WWWWW:** 5 digits for PRICE  
**K:** XOR de los dígitos anteriores  
**C<sub>R</sub>:** 0x0Dh      **L<sub>F</sub>:** 0x0Ah

### 3.36 Protocol TF-1000

#### Protocol

**Cash Register**

**Scale**

← E<sub>Q</sub>  
 ← A<sub>K</sub> →  
 ← S<sub>X</sub>WWWWW33E<sub>X</sub>

The Scale sends the E<sub>Q</sub> when the key Enter is pressed.

#### Where:

**E<sub>Q</sub>:** 0x05h  
**A<sub>K</sub>:** 0x06h  
**S<sub>X</sub>:** 0x02h  
**WWWWW:** 6 digits for weight.  
**E<sub>X</sub>:** 0x03h